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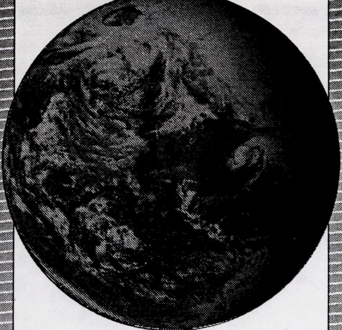

Building on Customer Needs

A Proposal for the Development of the National Applied Resource Sciences Center

May 1995

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A Proposal for the Development of the National Applied Resource Sciences Center

Bureau of Land Management
May 1995

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Executive Summary

The world around us is constantly changing, and the Bureau of Land Management (BLM) is striving to keep up with those changes. BLM is faced with finding new ways to accomplish its mission and improve service to customers within the limits imposed by shrinking budgets and reductions in personnel. In order to meet this challenge, BLM is modifying its organizational structure to put more employees on the ground, and to provide the best possible support to those employees. On November 8, 1994, the Secretary of the Interior authorized the establishment of a new National Applied Resource Sciences Center (the Center) which has a pivotal role in providing that support.

The proposal for organization of the Center emerged through an intensive process which focused on customer needs. The proposal was built from the bottom up and was based on input from customers and employees. From their input, a vision statement for the Center was proposed:

> *"The National Applied Resource Sciences Center is committed to meeting the needs of customers from throughout the Bureau. The Center is responsive to changing customer requirements, and products and services provided by the Center are in support of customer requests. The Center's focus is to provide scarce skills and specialized equipment which augment the work of the field in accomplishing the Bureau's mission. The Center serves as a brokerage for bringing skills together, as a link between policy and operations, and as a member of field teams to sustain the long-term health and productivity of the public lands and resources."*

Customer and employee input was also valuable in determining the proposed roles for the Center, which include:

- ***Scientific and Technical Consulting** — providing assistance and advice on natural resource subjects to BLM field specialists and others upon request; developing and providing training in coordination with the National Training Center; identifying research needs; assessing research results; providing scarce skills. The Center serves as an agent to bring scientific and technical skills together to assist its customers. Examples include: riparian ecological site training; instream flow assessment reports; soil survey enhancement demonstration efforts; and toxicology, geohydrology, and remote sensing support.*
- ***Information Exchange** — collecting and assimilating scientific and technical information based on customer requests; synthesizing and disseminating information to meet customer needs. Examples include: technical notes, technical references,literature searches and reviews, writing/editorial support, graphics services, audio/visual presentations, and technical assistance brokering services.*
- ***Production** — providing products and services supporting on-the-ground activities of customers in Resource Areas, Districts, and States; supplying necessary tools or specialized equipment to support the customers' use of science and technology to make sound resource management decisions. Examples include: administrative status (surface and subsurface, 1:100,000-scale) map series; special management maps; hazardous materials site evaluations; digital elevation models; and architecture and engineering drawings, specifications, and cost estimates.*
- ***Analysis and Assessment** — responding to customers' requests to analyze and assess land management issues; providing tools and expertise to support customers' needs to integrate the social, economic, and environmental aspects of ecosystem management. Examples include: health rangeland standards and guidelines, natural resources damage assessment, and the Colorado River salinity control initiative.*
- ***Systems** — designing resource systems for customers' use in assessing, documenting, and monitoring ecosystem conditions; promoting data sharing and acquisition of interagency resource information systems and applications;*

coordinating scientific systems design and maintenance, data management, and geospatial projects between field resource specialists and computer system specialists. Examples include: River Management Modeling System, Integrated Landscape Analysis, user representatives for the Wildlife and Fisheries Information System (WFIS) and the Grazing Authorization and Billing System (GABS), and geographic information system applications.

The organizational structure for the Center was developed around the vision and roles and meeting customer needs. The proposed structure includes a Director, who maintains extensive customer contacts to focus the Center on customers; five administrative groups containing a Group Supervisor and a mix of employees aligned by functions; and three Workflow Coordinators, who plan and manage work processes and help set priorities. Teams are formed to handle major customer requests. Teams include a Team Lead and the best available employees from the administrative groups, and may also include members from outside the Center. Much of the work is performed under a laboratory concept, which encourages employees to meet, work with external parties, and collaborate. Some labs contain specialized equipment which is available to employees and customers. The labs are maintained by Lab Managers.

The Center will benefit the Bureau and its customers in a number of ways by:

- Focusing on quality products and timely services that meet customers' needs
- Encouraging scientific and technological excellence
- Increasing flexibility and responsiveness to changing customer requirements
- Enhancing the Bureau's skills base
- Providing a pool of scarce specialized skills for use by the entire Bureau, thereby supplementing the capabilities of field offices and enabling them to best utilize their FTEs.
- Flattening the organization
- Achieving a supervisor to employee ratio of about 1:20, and reducing the number of GM 13-15 positions.
- Improving efficiency and effectiveness
- Providing accountability and reporting to customers
- Incorporating interdisciplinary teams, partnerships, and collaborative approaches
- Increasing longevity through planning to reduce the economic and social costs of periodically reorganizing and implementing new organizational structures
- Encouraging communication and interaction among employees and customers
- Empowering employees and customers
- Ensuring that work is relevant to the overall mission and agenda of the Bureau
- Facilitating technology transfer and information exchange with field offices

This proposal recommends a vision, role, and organizational structure for the National Applied Resource Sciences Center. A 4-month period is anticipated to fully implement the organization and adjust to new roles. This document contains the framework—further work is necessary to prepare the table of organization, final staffing plan, working environment, standard operating procedures, and personnel and financial documents. Key documents will be prepared within 60 days. A commitment has been made for the new organization to reflect current FTE and budgetary goals set forth by the Service Center Director and the Bureau's leadership.

Introduction

On November 8, 1994, the Secretary of the Interior signed Secretarial Order No. 3182 to modify the organization of the Bureau of Land Management (BLM). The Order outlined changes to BLM's Headquarters structure, and initiated the establishment of three national support centers, including a National Applied Resource Sciences Center (the Center).

BLM is making these modifications in response to the many challenges it faces—challenges such as ecosystem management and Reinventing Government initiatives. Ecosystem management requires BLM to take a different approach to managing the public lands and resources, and to work across traditional boundaries in cooperation with other agencies and private landowners. Reinventing Government initiatives require BLM to evaluate its programs, eliminate those that are unnecessary, and streamline processes within programs that are continued. At the same time, BLM is faced with the "rightsizing" of the Headquarters Office and reductions in budget and personnel. The bottom line is that BLM must find new and better ways to accomplish its mission, while at the same time reducing costs, improving the way it conducts business, and improving service to its customers.

To help meet these challenges and chart a course for the future, BLM has developed a Corporate Agenda which identifies five overarching goals:

Cooperate Agenda

- *Maintain healthy ecosystems*
- *Serve current and future publics*
- *Promote collaborative leadership*
- *Improve business practices*
- *Improve human resource management practices*

Establishing an organizational structure which supports these goals is crucial to the agency's success. BLM's strategy is to reduce organizational layers and increase the number of employees providing services on the ground, thereby improving service to the public. In addition, BLM is developing ways to provide the best possible administrative and technical support to those employees, making it easier for them to accomplish their jobs. The establishment of the National Applied Resource Sciences Center is an important component of that support.

Since the Secretarial Order was signed, an intensive process has been underway to develop the Center. This document outlines the process and presents a proposal for the Center's vision, roles, and organization as a framework for review by the Bureau's leadership.

Process Overview

The objective for developing the Center was to create a customer-oriented mission and organization based on:

- A foundation of employee skills, abilities, knowledge, and excellence
- Customer needs and customer service
- Productive linkages to internal and external entities
- Standard procedures that enable the organization to excel in customer service
- Good science
- Efficiency and flexibility
- A healthy work environment
- Opportunity and incentive for employees to succeed
- Making a positive contribution to the Bureau and its Corporate Agenda

These objectives were used to develop a conceptual framework of the tasks required to establish the Center (Figure 1). Out of this framework, a process emerged for developing the organization proposal:

- Seven teams of employees were formed to accomplish specific tasks: the Customer Needs Team, Linkages and Relations Team, Skills Team, Organization Team, Mission and Roles Team, Standard Operating Procedures Team, and Working Environment Team. All of the teams were made up of employees who either volunteered or accepted nominations to the teams; the Mission and Roles Team was made up of one member from each of the other teams. The employee teams were empowered to develop their own processes to accomplish their specific tasks. They were essentially given a "blank page" to develop proposals, with the idea that services provided by the Center may be different from those provided in the past.
- The Division Chief and the Branch and Section supervisors in the Division of

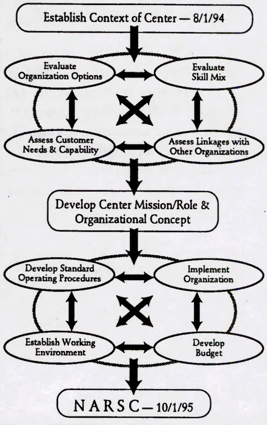
Establish Context of Center — 8/1/94
Evaluate Organization Options
Evaluate Skill Mix
Assess Customer Needs & Capability
Assess Linkages with Other Organizations
Develop Center Mission/Role & Organizational Concept
Develop Standard Operating Procedures
Implement Organization
Establish Working Environment
Develop Budget
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Figure 1. NARSC Development Flow Chart.

Applied Resource Sciences formed the Leadership Team. Leadership Team members participated on each of the employee teams to provide advice, guidance, and review throughout the process.

- An Oversight Team, composed of members of the Bureau's Executive Leadership Team, including the State Directors of Colorado, Wyoming, and Arizona, and the Assistant Director for Resource Assessment and Planning (to whom the Center Director reports), was formed to bring an outside perspective to the process, ensure that the needs of the Bureau were represented, and ensure that the proposed organization would accommodate other changes taking place within the Bureau.

The employee teams, the Leadership Team, and the Oversight Team worked closely with each other throughout the process. Some of the teams were dependent upon products and information generated by other teams to accomplish their tasks, which required frequent interaction. Extensive communication among the teams helped to ensure that all the pieces came together to form a quality proposal.

During the process, input was solicited from employees in the Division of Applied Resource Sciences through surveys and requests for feedback on team reports. Because they have worked closely with their customers, employees were able to provide valuable information on customer requirements, level of demand for specific tasks, and important service issues. They also brought an important perspective to the process, and provided a source of ideas for structuring an organization to meet their customers' needs. In return, the employees gained a sense of ownership, pride, and commitment to the organization by participating in the process.

This process allowed all levels of the BLM organization to take part in the development of the Center, thereby ensuring that the proposal would meet the needs of the Bureau and that it would be based on valid customer information. The organization proposal for the Center reflects the level of effort and involvement that went into the process.

Phase 1 — Initial Research

Assessing Customer Needs

The most important aspect of forming a support organization is knowing who its customers are and how to meet their needs. Customer information provides the foundation upon which the rest of the organization is built. Accordingly, a thorough assessment of customers and their needs was vital to the Center's development process. The philosophy behind the assessment was to ensure that the proposed organization would be providing services for which legitimate customer needs were identified, rather than just providing services because the services had been provided in the past.

In order to obtain the most complete picture possible, customer needs were assessed in two ways. First, employees were surveyed to obtain information about their current customers, the services they currently provide, and the services they predict there will be a need for in the future. Field offices were provided with lists of work that the Center was doing for them, and they were asked to verify and update the list. Second, customers were surveyed to obtain information on services they are currently receiving and services they would like to receive in the future.

Employee Survey

The first part of the customer needs assessment was conducted by the Customer Needs Team. The Team:

- Performed a review of several previous studies pertaining to services provided by BLM's Service Center
- Developed an employee survey to identify current customers, their needs and requests, and the products or services provided
- Developed a database of the survey responses to summarize the data, perform various types of analyses, and illustrate trends

From the database, the Team was able to determine the overall components of the customer base (Figure 2). They were also able to determine that the largest number of requests for assistance come from Bureauwide, Headquarters, and U.S.-Interagency customers (Figure 3). In addition, the Team was able to derive several categories of services currently provided:

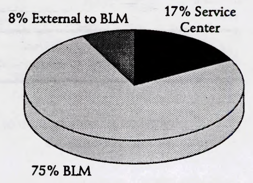

Figure 2. Customer Base Breakdown (FY 94 and Projected FY 95 Included). The Service Center percentage represents products and services provided to Service Center employees acting as intermediaries for customers.

- Scientific/technical assistance

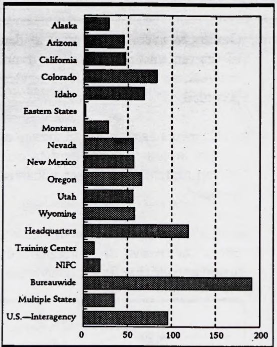

Figure 3. Customers by Jurisdiction (FY 94 and Projected FY 95 Included).

- Development and presentation of training/professional seminars
- Cartographic services
- Engineering and architectural design services
- National automated resource system user support
- Preparation of technical guidance
- Production of professional/technical reports, publications, and other materials
- Policy development assistance
- Graphic arts and video assistance

The Team identified several trends, based on continuing and predicted customer needs, and made recommendations for accommodating those trends in the proposed Center:

- Support emerging programs such as ecosystem management by developing specialized training and guidance (in conjunction with the National Training Center) and by serving as a clearinghouse of information to the field
- Support the continuing need for scientific/technical assistance to field offices, especially in an increasing number of specialized, national-scope areas
- Support the continuing need for consultants to the field, participants in "resource expert networks," and interagency coordinators
- Support the increasing demand for technical user support to field offices for national-scope resource automated systems, and the need for scientific/technical consultants in the growing field of acquisition and use of natural resources spatial data

The Team also recommended that the assessment of customer needs be an ongoing process.

Customer Survey

To supplement the employee survey and to verify present and future customer needs, the Customer Needs Team and the Oversight Team requested that a random survey of customers from throughout the Bureau be conducted as part of the customer needs assessment:

- Independent interviewers from outside of the proposed organization were selected by the Oversight Team to conduct the survey, thereby ensuring objectivity.
- A sample of 105 employees from three levels in the Bureau was used: 5 from the executive level (Executive Leadership Team, Field Committee, and Corporate Board); 35 from the management/leads level (other Headquarters and State Office employees, National Interagency Fire Center, and National Training Center); and 65 from the field level (District Offices, Resource Area Offices, and specialized offices). The sample of respondents was limited to potential Center customers by selecting only organizational units and job series that might be directly or indirectly involved in field work.
- The survey focused on four areas of concern: customer need for current services, best ways to provide services, how to better meet customer needs, and the need for services not currently being provided.
- A database of the survey results was created so that customer input could be analyzed and reported.

Respondents to the survey were requested to provide answers which best represented their immediate organizational unit, as opposed to their individual opinions. The results of the survey provided important indicators about customers and their needs:

- Seventy-two percent of survey respondents had received a product or service in the past.
- In general, respondents indicated a need for the services currently provided, which are listed in Figure 4.

The survey asked customers to rank their five highest priority needs from the current services list. Responses varied greatly, which seemed to indicate that nearly every service is a high priority to someone. The services most often indicated as priorities included:

Respondents' Highest Priorities from Services Currently Provided

- *Project Design*
- *Administrative Map Revisions (100k, 500k)*
- *GIS Applications Development Support*
- *Hydrology/Groundwater Investigations*
- *Remote Sensing/Satellite Data Analysis*
- *Grazing Authorization & Billing System (GABS) User Representation*
- *Hazardous Materials Site Assessments*
- *Contract Services*
- *Engineering Specifications*
- *Aerial Photogrammetric Support*
- *Instream Flow Assessments*
- *Hazardous Materials Management Facilities Audits*
- *Standard Engineering Drawings*

The survey also asked about the best way to fund the Center to meet customer needs for their highest priority services. Responses were almost evenly split between the Center funding the work entirely and

Figure 4. Current Services.

- Air Quality Assessment
- Animal Life History
- Archeology/Cultural Resource Modeling and Guidance
- Cadastral Boundary Analysis
- Climatology
- Computer Modeling of Resources
- Desired Plant Community Determination Assistance
- Development of Automated System User Guides
- Ecological Site Inventory Guidance
- Economics Support
- Engineering and Architectural Technical Assistance:
  - Accessibility
  - Facilities Inventory Maintenance Management Info System (FIMMS)
  - Inspections and Enforcement (Bridge Load Ratings, Buildings, Dams, Recreation Sites, Roads, Trails)
  - Master/Project Plans
  - Project Design (Buildings, Dams, Water Systems, Landscape Architecture, Roads, Bridges, etc...)
  - Seismic Safety in Buildings
  - Specifications
  - Standard Drawings
  - Value Engineering
  - Waterpower and Reservoir Resources
- Fisheries Habitat Management Guidance & Technical Assistance
- Forest Inventory
- Geochemical Modeling
- Geospatial Data Support:
  - Administrative Map Revisions (100k, 500k)
  - Aerial Photogrammetric Support
  - Large Scale Topographic Base Map Compilation
  - Litigation Support-(Trespass Evaluation, Volumetric Analysis, Riparian Boundary Investigation)
  - Photogrammetric Project Design
  - Photogrammetric Survey/ Cadastral Boundary Analysis
  - Vegetation and Habitat Inventory Analysis
  - Aerial Photography Contracting
  - Aerial Photography Archive (BLM photography)
  - Digital Data Conversion and Generation
  - Digital Elevation Model (DEM) Production
  - Large Format Color/B&W Scanning
  - Geographic Information Systems Applications Development Support
  - Global Positioning Systems Support
  - Photo Lab Reproduction (Aerial Photography)
  - Remote Sensing/Satellite Data Analysis (Vegetation Classification, Soil Enhancement Maps, Fire Fuels Delineation, Change Detection Studies)
  - Special Map Production (Recreation, Wilderness, RMP, Desert Access)
- Graphic Arts (Publications, Exhibits, Presentations, Artwork)
- Hazardous Materials Assistance:
  - Site Assessments
  - Contract Services
  - Facilities Compliance Assessments
  - Natural Resource Damage Assessment
  - Potentially Responsible Party (PRP) Site Cleanup Cost Avoidance/Cost Recovery
  - Records Automation and Maintenance
  - Risk Assessment
  - Underground Storage Tanks/ Leaking Underground Storage Tanks
  - Waste Minimization/ Recycling/Substitution
- Hydrology/Groundwater Investigations
- Instream Flow Assessments
- Interagency Representation For Natural Resource Management and Sciences
- Landscape/Watershed Resource Planning Guidelines and Assistance
- Literature Searches
- National Automated System User Representatives and Training :
  - Automated Inspection Records System (AIRS)
  - Grazing Authorization & Billing System (GABS)
  - Inventory Data System (IDS)
  - Material Disposal System (Timber Sale Info System and Special Forest Products)
  - Monthly Report of Operations (MRO)
  - Rangeland Improvement Project System (RIPS)
  - Wild Horse and Burro Information System (WH&BIS)
  - Wildlife and Fisheries Information System (WFIS)
- National Work Planning and Draft Policy Development
- Plant Ecology and Vegetation Analysis
- Public Lands History
- Rangeland Inventory and Monitoring
- Research Program Coordination
- Resource Data Transfer and Application
- Resource Monitoring Guidance
- Resources Personal Computer Program Customization
- Riparian-Wetland Area Management Guidance, Information, and Assistance
- Riparian-Wetland Functional Assessments
- Soil Quality/Health (Condition Assessment)
- Soil Survey and Interpretation
- Special Status Species (Plants) Modeling and Recovery Plan Assistance
- Statistical Guidance for Data Collection and Analysis
- Technical Guidance and Report Development
- Terrain Analysis
- Training Course Design and Teaching Support for Resources
- Video and Multimedia Production
- Watershed Evaluations (Inventory, Analysis, etc.)
- Wildlife Habitat Management Technical Assistance
- Writer/Technical Editor Services

other funding options (Figure 5). Costs normally have been shared when efforts were of a long-term nature or unusual expenses were incurred, and the Division of Applied Resource Sciences has been expected to cover workmonths. Respondents appeared to support having the Center fund low-cost, repetitive services, such as consulting, automated system user support, map revision, and others, but for major projects, such as hazardous materials contracts or building construction, they indicated that the benefiting offices should cover expenses. These conclusions support providing the Center with base funding for workmonths and ordinary expenses, while encouraging some cost sharing to ensure that work requested is a high priority and the customer considers it valuable enough to pay for.

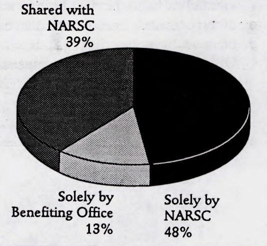

Figure 5. Funding Preference for NARSC.

The best way to provide services was also addressed in the survey. Forty percent of the respondents supported the use of interdisciplinary teams to best meet customer needs. Twenty-five percent preferred that the Center do the work, while 20 percent wanted the Center to train the field to do the work (Figure 6).

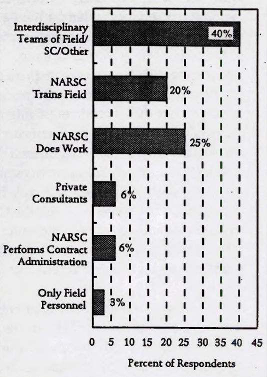

Figure 6. Best Methods of Providing Service.

The level of customer satisfaction with products in the past was closely related to their demand for services in the future. While the survey did not attempt to produce exhaustive information on customer satisfaction, it collected data to correlate demand and satisfaction. In general, respondents felt that the Center could most improve its services by:

- Improving timeliness
- Increasing accessibility and availability of specialists

- Increasing flexibility and response to changing customer needs

One concern of the Oversight Team was whether field offices really needed and wanted the services provided by the Center. There was also concern that with downsizing, early outs and buyouts, and reductions in FTE and funding, there might be functions that offices could no longer perform, but that the functions might still be needed. To address these concerns, the survey asked whether customers felt the Center's role in providing services should increase, stay the same, or decrease. Forty-five percent of respondents felt the Center should continue to provide the same level of services, while 29 percent wanted the Center to do a great deal more (Figure 7).

As BLM is changing its organizational structure and migrating skills to the level closest to the ground "where the work is," the role of centralized services has become an issue. To address this issue, the survey asked about the best place to locate the services provided by the Center. Sixty-two percent of respondents felt that their highest priority services should remain centralized (Figure 8), which supports the concept that not all offices can afford to retain personnel to provide "scarce skills." And while there is some support for relocating the services elsewhere, the next highest number of respondents (18 percent) felt that the best place to locate services was at the State Office. Respondents rarely recommended these services be placed in District or Resource Area Offices.

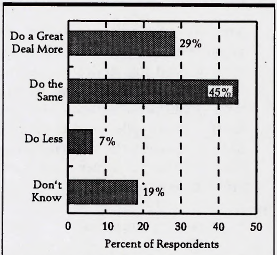

Figure 7. Future Level of NARSC Support to BLM.

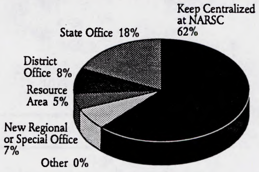

Figure 8. Options for the Best Place to Locate NARSC Services.

Another issue addressed by the survey was whether a need exists for services that are not currently provided by the Center. The responses showed general support from customers for approximately 60 proposed new services. As with current services, few respondents had the same priorities, so no clear conclusions could be drawn about services that should be added. The proposed new services most often indicated as high priorities included:

Respondents' Highest Priorities from Services Not Currently Provided

- *Ecosystem Management Data Integration and Modeling*
- *Science and Natural Resource Management Library*
- *Information Storage, Retrieval, and Dissemination*
- *Communications Conduit for BLM Specialists - Inter/Intra Agency*
- *Hazardous Waste Site Removal and Remediation*
- *NEPA/Environmental Compliance (Integrate with Ecosystem Management)*
- *Framework for Ecosystem Science*
- *River Basin Studies*
- *Senior Specialist/Scarce Skills for all Technical Areas*
- *Surface Restoration and Reclamation*
- *Abandoned Mine Lands Technical Support*
- *Resources Data on CD ROM*
- *Data Base for Regional Ecosystem Mgmt.*

Further analysis of new functions, with significant input from the Bureau's leadership, would be required before new functions would be determined.

Determining Linkages

Linkages are ongoing professional interactions which allow employees to accomplish specific tasks, expand their knowledge and base of intellectual resources, stay current in their professions, find alternative solutions, avoid duplication, identify and share scarce skills and resources, and reduce the cost of doing business. The Linkages and Relations Team conducted an assessment to identify specific entities with linkages to the Center, propose possible new links to be developed, and identify where other entities may have common interests. The Team:

- Developed a survey to collect linkage information from employees

- Created a separate database to store, analyze, and categorize the linkage data (Figure 9)

Figure 9. Categories of Linkages.

First Tier (Organization 1)

Federal Government
NonFederal Government
Private Interest
Any Academic/Educational Contact
Cooperative Effort Consisting of a Variety of Entities

Second Tier (Organizational 2)

Federal Categorization
Agricultural Research Service
Bureau of Indian Affairs
Bureau of Land Management
Bureau of Mines
Bureau of Reclamation
U.S. Army Corps of Engineers
Cooperative Effort
Department of Defense
Department of Energy
Department of the Interior
Environmental Protection Agency
Federal Aviation Administration
Federal Energy Regulatory Commission
Federal Highway Administration
Government Printing Office
Interior Geographic Data Committee
Minerals Management Service
National Biological Service
National Center for Atmospheric Research
National Interagency Fire Center
National Oceanic and Atmospheric Administration
National Park Service
Natural Resources Conservation Service
National Weather Service
Office of Construction Management
Office of Environmental Affairs
Office of Environmental Policy and Compliance
Office of Surface Mining
U.S.D.A. Forest Service
U.S. Fish and Wildlife Service
U.S. Geological Survey
U.S. Navy

continued...

Figure 9. Categories of Linkages (continued).

Non-Federal Categorization
State Government
Government Below the State Level
Professional Association or Society
Special Emphasis Group
Cooperative Effort
Corporations, Individuals, etc.

Third Tier (Organizational 3)

Bureau of Land Management Categorization
All BLM Offices
District Office
Denver Washington Office
Field Office
Washington Headquarters Office
Landscape Ecology Modeling and Analysis
National Applied Resource Sciences Center
National Training Center
Resource Area
Service Center
State Office
Western Fish and Wildlife
Wild Horse and Burro National Office

Bureau of Reclamation Categorization
Colorado River Basin Salinity Control
Colorado River Salinity Coordinating Committee

Department of Energy Categorization
Photovoltaic Design Assistance Center
Sandia National Laboratories

Environmental Protection Agency Categorization
Environmental Monitoring and Assessment Program

U.S.D.A. Forest Service Categorization
Fort Collins Unit
Geometronics Service Center
Intermountain Research Station (INTFRES)
Missoula Fire Laboratory
National Advanced Resource Technology Center
Pacific Northwest Forest and Range Experiment Station (PNWFRES)
Regional Office
Rocky Mountain Forest and Range Experiment Station

U.S. Fish and Wildlife Service Categorization
National Resources Ecology Laboratory
National Wetland Inventory

U.S. Geological Survey Categorization
Advanced Systems Center
Earth Resource Observation Satellite
Earth Science Information Center
Geologic Education Outreach

continued...

Figure 9. Categories of Linkages (continued).

National Mapping Division
Training Center
Water Resources Division

Natural Resources Conservation Service Categorization
Land Treatment Program
National Soil Erosion Laboratory

Miscellaneous
Colorado Division of Wildlife
Grand Canyon Visibility Transport Commission
National Cooperative Soil Survey
National Trends Network
Rocky Mountain Area Coordination Center
Solicitor

From the database, the Team was able to determine that more than three-fourths of all reported linkages were with Federal entities; private and academic entities were second and third, respectively (Figure 10). Within the Federal linkages category, 55 percent were with BLM, 14 percent were with the Forest Service, 10 percent were with U.S. Geological Survey, and the rest were accounted for by other agencies and Federal cooperative efforts. The approximately 100 links with BLM offices were

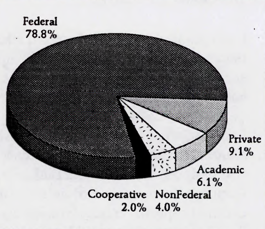

Figure 10. Linkage Entity Types.

roughly split between field offices (Districts, Resource Areas, State Offices) and other levels of the organization (Headquarters and internal Service Center links).

The Team also categorized the nature of the linkages in order to determine the type of work being accomplished. Five major categories were identified (Figure 11):

- Technical Expertise
- Information Exchange
- Production/Operations
- Strategy/Policy/Planning
- Database/Systems

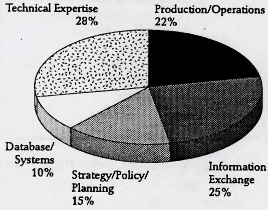

Figure 11. Major Linkage Functions.

The Team found these linkages to be beneficial and to support the Bureau's mission and the Corporate Agenda by broadening perspectives and skill mixes; contributing to scientifically sound, consensus-based management decisions; emphasizing interdisciplinary and interagency approaches; facilitating collaborative leadership; providing protection for and sustainable use of cultural, natural, and recreation resources; and improving procedures and service to the public.

Based on their analysis of the data collected, the Linkages and Relations Teams made the following recommendations for the Center:

- Linkages between the Center and Headquarters should be revisited frequently because of Headquarters and field office reorganization decisions.
- The present level of interaction between the Center and BLM special offices could and should be expanded.
- The Center's interaction with remaining rightsized positions should be expanded. It would be appropriate for Assistant Directors to consult with the Center Director to evaluate whether rightsized functions should be assumed, since these are functions the Center could provide to fill any gaps.
- Linkages should be tracked through workload and business reporting methods so that trends in linkages can be evaluated and the Center can respond to the changing organizational environments.

Gathering Other Preliminary Information

Other preliminary information was gathered to provide a baseline from which to determine resources and requirements for implementing the organization proposal for the Center:

- The Skills Team developed a list of job series in the Division of Applied Resource Sciences (Figure 12), summarized information from employees

Figure 12. Job Series.

- Archeologist
- Architect
- Audiovisual Prod. Specialist
- Botanist
- Cartographer
- Cartographic Technician
- Civil Engineer
- Clerk Typist
- Computer Assistant
- Computer Specialist
- Editorial Assistant
- Electrical Engineer
- Engineering Technician
- Environmental Engineer
- Fishery Biologist
- Forester
- General Engineer
- Geodesist
- Geologist
- Historian
- Hydrologist
- Landscape Architect
- Mechanical Engineer
- Mining Engineer
- Natural Resource Specialist
- Operation Research Analyst
- Paralegal Specialist
- Photographer (lab)
- Photographic Technician
- Physical Scientist
- Program Analyst
- Program Officer
- Rangeland Mgmt. Specialist
- Secretary
- Soil Scientist
- Special Assistant
- Student Trainee
- Surface Protection Specialist (Data Coordination)
- Tech. Publications Writer/ Specification Writer
- Toxicologist
- Visual Information Specialist
- Wildlife Mgmt. Biologist
- Writer/Editor

concerning levels of education (Figure 13), and listed types of degrees held by employees (Figure 14) to obtain an idea of the diverse skills and expertise of the workforce.

- The Work Environment Team developed an employee survey to rate the current organization on specific issues, such as trust and accountability, and to solicit suggestions for how to improve those areas receiving anything but the highest rating.

- The Standard Operating Procedures Team documented current standard operating procedures in the Division, and solicited employee suggestions for improvements to current procedures.

Based on feedback from the employees, these teams will make recommendations appropriate for the proposed Center.

Figure 13. Employee Job Series and Education Summary.

130	Employees as of Jan. 2, 1995 9 of these are in the GM series	
43	different job series (not job description)	
167	Degrees (Trade Schools and AAs included)	
	105	undergraduate degrees
	37	masters degrees
	5	PhDs
	1	JD
	3	Trade School Certificates
	12	AAs
	2	ASs

Figure 14. College and Advanced Degrees Held by Employees.

- Agriculture
- Agronomy
- Anthropology
- Aquatic Ecology
- Archeology
- Architecture
- Architectural Engineering
- Biology
- Botany
- Business
- Cartography
- Chemical Engineering
- Chemistry
- Civil Engineering
- Counseling
- Creative Arts
- Earth Science
- Economics
- Electrical Engineering
- Elementary Education
- English
- Environmental Conservation
- Environmental Design
- Environmental Engineering
- Environmental Health
- Environmental Sciences
- Fine Arts
- Fish & Wildlife Biology
- Fisheries Biology
- Forestry
- Game Management
- Geodesy
- Geology
- Geography
- Geologic Engineering
- Geophysical Engineering
- History
- Hydrology
- Industrial Engineering
- Interior Design
- Journalism
- Land Use & Environmental Planning
- Landscape Architecture
- Law
- Life Science
- Management Science
- Marketing
- Mathematics
- Mechanical Engineering
- Mining Engineering
- Music Education
- Natural Resource Management
- Petroleum Engineering
- Plants and Soil Science
- Police Science
- Political Science
- Psychology
- Public Administration
- Range Management
- Range Watershed
- Religious Studies
- Remote Sensing
- Social Science
- Watershed Science
- Wildlife Biology

Phase 2 — Organization Proposal

Determining the Mission and Roles

Having a vision that the employees understand and support helps to ensure that everyone is working toward common goals, and can be the key to an organization's success. The Mission and Roles Team was tasked with developing the mission and roles for the National Applied Resource Sciences Center based on customer needs and relationships to internal and external entities, in accordance with the BLM mission and Corporate Agenda. The Team concluded that the Center's mission is to support BLM's mission, and therefore a separate mission statement was unnecessary.

The Team developed a vision statement for the Center, which was based on the findings of the Customer Needs and Linkages and Relations Teams, as well as on input from the Oversight Team. The vision reinforces the Center's commitment to customer service:

Vision

> *"The National Applied Resource Sciences Center is committed to meeting the needs of customers from throughout the Bureau. The Center is responsive to changing customer requirements, and products and services provided by the Center are in support of customer requests. The Center's focus is to provide scarce skills and specialized equipment which augment the work of the field in accomplishing the Bureau's mission. The Center serves as a brokerage for bringing skills together, as a link between policy and operations, and as a member of field teams to sustain the long-term health and productivity of the public lands and resources."*

The Team then reviewed categories of services from the customer and linkage data and analyzed them with regard to the goals in the Corporate Agenda to ensure that the services were valid within the Bureau. Based on this analysis and input from the Oversight Team, five roles were derived for the Center. The proposed roles are responsive to both current and future needs expressed by customers:

Roles

Scientific and Technical Consulting *— providing assistance and advice on natural resource subjects to BLM field specialists and others upon request; developing and providing training in coordination with the National Training Center; identifying research needs; assessing research results; providing scarce skills. The Center serves as an agent to bring scientific and technical skills together to assist its customers. Examples include: riparian ecological site training; instream flow assessment reports; soil survey enhancement demonstration efforts; and toxicology, geohydrology, and remote sensing support.*

Information Exchange *— collecting and assimilating scientific and technical information based on customer requests; synthesizing and disseminating information to meet customer needs. Examples include: technical notes, technical references, literature searches and reviews, writing/editorial support, graphics services, audio/visual presentations, and technical assistance brokering services.*

Production *— providing products and services supporting on-the-ground activities of customers in Resource Areas, Districts, and States; supplying necessary tools or specialized equipment to support the customers' use of science and technology to make sound resource management decisions. Examples include: administrative status (surface and subsurface, 1:100,000-scale) map series; special management maps; hazardous materials site evaluations; digital elevation models; and architecture and engineering drawings, specifications, and cost estimates.*

Analysis and Assessment — responding to customers' requests to analyze and assess land management issues; providing tools and expertise to support customers' needs to integrate the social, economic, and environmental aspects of ecosystem management. Examples include: health rangeland standards and guidelines, natural resources damage assessment, and the Colorado River salinity control initiative.

Systems — designing resource systems for customers' use in assessing, documenting, and monitoring ecosystem conditions; promoting data sharing and acquisition of interagency resource information systems and applications; coordinating scientific systems design and maintenance, data management, and geospatial projects between field resource specialists and computer system specialists. Examples include: River Management Modeling System, Integrated Landscape Analysis, user representatives for the Wildlife and Fisheries Information System (WFIS) and the Grazing Authorization and Billing System (GABS), and geographic information system applications.

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Developing the Organizational Structure

The most important considerations in developing the National Applied Resource Sciences Center's organizational structure were that it reflect the Center's vision and roles, provide the best possible service to customers, and have the support of the employees providing the service, since they are ultimately responsible for satisfying customer needs and providing excellent service. To develop a proposal, the Organization Team:

- Evaluated present work processes that must be accommodated in organizational design, using the concept of "form follows function"
- Determined six key factors that either affect or are influenced by organizational structure: work process, horizontal and vertical communications, organization type, organization size, external environment, and organizational goals and responsibilities
- Researched seven different organizational structures: the existing structure, a modification to the existing structure, four options selected from organizational design literature that showed some promise of supporting the Center's vision and roles, and a "hybrid" model developed by the Team
- Evaluated each option on 19 attributes of an effective organization (attributes are shown in Figure 15), implementation effort required, and probability of accomplishing organizational change
- Solicited feedback and input from employees

The work of the Organization Team, feedback from employees, and other employee proposals were then assimilated by the Leadership Team to develop the final proposal for the organization of the Center. The proposal is a composite of the best attributes of various proposals and incorporates many changes based on employee comments. The Organization Team evaluated the final proposal on the 19 criteria, and found that it rated well (Figure 15).

The proposed organization consists of a Director, five administrative groups, three Workflow Coordinators, a number of teams, and three laboratories as shown in Figure 16:

Figure 15. Rating of Proposed Organization on Desirable Attributes.

Organizational Attributes	NARSC Proposed Organization
Goal: Maximize value added to work process	
1. Provides flexibility in addressing customer needs	Medium
2. Achieves span of control of 1:15 or better	High
3. Minimizes vertical communication barriers	Medium
4. Maximizes horizontal communication	Medium
5. Facilitates responsive and timely customer support	High
6. Enables application of TQM processes	High
7. Retains focus on mission requirements	High
8. Provides a conducive work environment and enhances job satisfaction	High
9. Enhances employee knowledge, skills, and abilities	High
10. Creates organizational stability	Medium
11. Provides for alternative career paths	
Technical	Medium
Managerial	High
12. Maximizes employee empowerment	Medium
13. Stimulates professional external interaction	High
14. Ensures ecosystem-based work processes	Medium
15. Reduces work process time	Low
16. Reduces work process cost	Medium
17. Reduces cost to administer	Low
18. Minimizes choke points in work processes	Medium
19. Maximizes accountability and responsibility	Medium
Evaluation Criteria	
1. Effort to implement	Medium
2. Probability of accomplishing organizational change	Medium

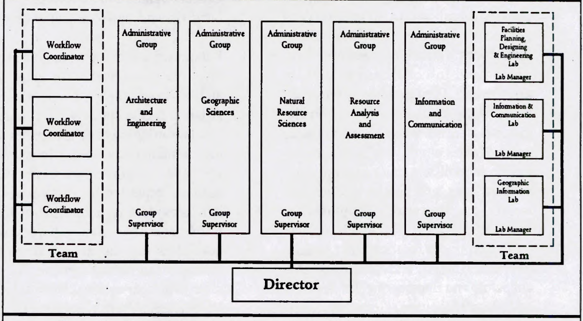


Figure 16. Proposed Organization for the National Applied Resource Sciences Center.

- The Director focuses the Center on existing and evolving customer needs through extensive contact with field offices and linkages to others. Based on customer input and priorities established by the Bureau's Executive Leadership Team, the Director shapes the organization and skill mix to be responsive to changing needs and improves work methods and procedures, thereby keeping the Center in a proactive position as a leader in resource management. The Director approves acceptance of all projects and/or tasks, and approves workload priorities. The Director reports to the Bureau's Assistant Director for Resource Assessment and Planning.

- The administrative groups are centered on functional, thematic areas associated with the five roles developed by the Mission and Roles Team. Each group may fulfill any one or all of the five roles. Groups are composed of one supervisor and a mix of employees aligned by functional responsibilities. Employees of various specialties are encouraged to collaborate and share knowledge. The Group Supervisor assigns work to the employees in the group based on their skills, monitors and evaluates employees' work performance, administers supervisory personnel functions, and acts as a coach and mentor; the supervisor to employee ration is about 1:22. The administrative groups proposed for the Center include Resource Analysis and Assessment, Architecture and Engineering, Information and Communication, Geographic Sciences, and Natural Resource Sciences.

- The Workflow Coordinators manage work requests; recommend required skills for team efforts; monitor scheduled assignments, expenditure of operation funds, and completion of team and individual tasks; prepare budget reports; and help set work priorities within the Center.

- Teams are formed in response to major customer requests, and bring together the best available employees to complete projects. Teams work in partnership with other BLM offices to provide specific products or services for customers. They may be composed of employees from several administrative groups, and may include others outside of the Center. Each team has a Team Lead to oversee daily activities and serve as the customer's main point of contact. Prior to beginning work, each team prepares a charter which forms a contract between customers and the Center. Teams can be formed and disbanded as needed to adjust to demand.

- Laboratories provide a creative and innovative environment for employees and others to collaborate on their work. A lab is a concept as well as a place. The labs bring specialists together from their administrative groups, and contain specialized equipment required to do the jobs requested by customers. The labs provide a resource that others in BLM can use to accomplish work or test new ideas and technological applications in resource management. A Laboratory Manager oversees activities in the lab and ensures that labs have the supplies and equipment needed to service

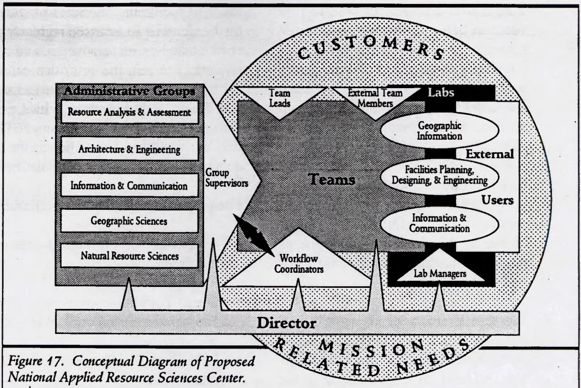


Figure 17. Conceptual Diagram of Proposed National Applied Resource Sciences Center.

teams. The laboratories proposed for the Center include Geographic Information; Facilities Planning, Designing, and Engineering; and Information and Communication.

The organization structure embodies the workflow process in the Center, and supports responsiveness to customers (Figure 17). The workflow process for major customer requests is as follows:

- The Director receives proposed work from the customer and initially screens the work to see that it is within the Center's vision and roles and the priorities established by the Bureau's Executive Leadership Team. The Director transfers accepted work to the Workflow Coordinators.

- Workflow Coordinators screen the proposed work to prioritize it in relation to other ongoing work, evaluate the initial skill mix needed, and determine other resources needed to do the work. The Workflow Coordinators send the work, along with their skill and resource assessment, to the Group Supervisors.

- Group Supervisors select the Team Lead. They make team assignments based on the best available people to accomplish the work. They convey the work to the team and empower the team to do the work.

- The Team Lead and team members charter their team and work with the customer to prepare a concise project plan. The customer approves the plan.

The charter and project plan form a contract between the Center and the customer. The team is responsible for the work and regularly communicates with the customer. The Team Lead schedules the use of laboratories and specialized equipment with the Lab Managers.

- The Workflow Coordinators monitor the progress of the team's products and services. They report to the Director and/or to the Group Supervisors, as needed, to ensure scheduled delivery of products and services.

- The team delivers the products or services to the customer, and is responsible for the quality of those products or services. The team is accountable to the customer.

- The Workflow Coordinators confer with the customer to ensure that the products or services were delivered on time and were of acceptable quality. The customer's comments are relayed to the team. The Director works with the Group Supervisors, Workflow Coordinators, and Lab Managers to improve the Center's performance.

Customer requests that do not require a project effort are handled one-on-one between the customer and the employee providing the service. The employee is accountable to the customer for the quality of the product or service provided.

Customers will continually be asked for feedback to ensure that the Center is meeting their requirements. Services provided by the Center will be assessed regularly to ensure that they are responsive to customer requests and within the priorities established by the Bureau's Executive Leadership Team. Based on those priorities, and within the constraints of funding and FTE, the Center will focus on providing the products and services that it accomplishes best.

The proposed organization for the Center:

- Gives flexibility to deliver customers' requirements

- Opens communications among peers and reduces organizational layers

- Focuses on BLM's mission and Corporate Agenda

- Provides employees opportunities for growth and job satisfaction

- Fosters interdisciplinary approaches and collaboration with internal and external specialists

- Maximizes trust, accountability, and responsibility

- Encourages employee professional growth, awareness, and creativity

- Embodies the proposed vision and roles for the Center, heeding the principle of form follows function

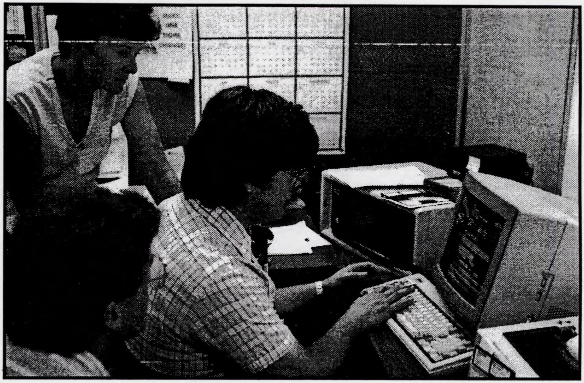
- Provides optimal flexibility to respond to changing customer needs

Phase 3 — Implementation

Implementation of the National Applied Resource Sciences Center organization is a critical part of the development process. The transition to the Center must be smooth and well planned so that disruption to employees and customers is minimized. During the transition, it is critical to ensure that customer needs continue to be met.

Making the transition as smooth as possible can best be accomplished by laying the groundwork prior to implementation. The employee teams have done much of the preliminary work and gathered the necessary information required for implementation. The requirements for implementing the organization proposal include:

- Communicating the new organization and capabilities to customers
- Building, maintaining, and formalizing procedures for establishing new linkages and partnerships
- Reorganizing physical space within a reduced facility
- Establishing and locating equipment in laboratories
- Determining the essential base of positions and skills and managing any surplus with minimal impact to employees
- Enacting required personnel and financial accounting changes
- Providing employees with tools and training to perform within the new organization



- Refining standard operating procedures within the organization
- Establishing an effective work environment
- Managing a budget, preparing for a 5-10 percent reduction in FY 96, to promote efficiency
- Developing methods which enable employees and teams to continue to concentrate on providing service to customers during the transition

A 4-month trial period is required to fully implement the Center by October 1, 1995. The table of organization and budget will be prepared within 60 days (by June 20th). Adjustments and refinements are anticipated, based on employee and customer reviews of the new organization.

Conclusion

The organization proposal for the National Applied Resource Sciences Center is founded in extensive research conducted throughout a detailed development process. The organization was designed from the bottom up—starting with customers and employees. Their input reinforces that there is a need in the Bureau for the services that the Center will provide. The customer survey showed strong support for continuing centralized services and assessing some new functions required by field offices. This organization proposal presents the most efficient, effective way to meet customer needs and empower employees.

The Center will benefit the Bureau and its customers in a number of ways:

- **Focus on Products and Services:** Separating administrative duties from production, workflow, and service duties enables the workforce to focus on providing quality products and services and promotes better supervision and mentoring.

- **Scientific and Technological Excellence:** Establishing laboratories provides access to work areas with specialized equipment and allows the best science and technology to be applied to practical land management applications.

- **Flexibility and Responsiveness:** Maintaining the flexibility to form and disband teams allows the Center to be responsive to changing customer needs and technology without requiring reorganization.

- **Skills Base:** Bringing in outside parties as members or leaders of teams, as well as instituting a collaborative approach with other agencies and governments, academic institutions, international affiliates, interest groups, professional associations, and others, expands the skills base and benefits team members by exposing them to new concepts, ideas, and capabilities.

- **Scarce Skills:** Providing field offices with a pool of specialists to supplement their staffs enables them to accomplish more with reduced FTE.

- **Flattening the Organization:** Reducing organizational layers improves communication, makes it easier for customers to obtain services directly from employees, and improves the way business is conducted.

- **Efficiency and Effectiveness:** Streamlining management and work processes, while empowering employees and providing better skills, methods, tools, and technology, allows the Center to work more efficiently and effectively.

- **Accountability and Reporting:** Formalizing and standardizing the workflow and work processes—using Workflow Coordinators to prioritize the most critical jobs, project management tools and techniques to plan and monitor projects, and Team Leads to ensure customer needs are addressed and feedback mechanisms exist—improves accountability and ensures customers' expectations are met or exceeded.

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- **Interdisciplinary Teams, Partnerships, and Collaborative Approaches:** Fostering an interdisciplinary team approach broadens the services provided to customers, results in more collaboration and sounder decisions, increases the use of technology, and provides better support for accomplishing BLM's mission and the goals in the Corporate Agenda.

- **Long-Term Planning:** Utilizing the flexible, customer-based approach that was used to design the vision, organization, and work processes for the Center improves its ability to fulfill its required roles over a longer range of time, thereby reducing the high costs of reorganizing and restructuring as needs and the environment change.

- **Communication and Interaction:** Maintaining better communication and encouraging interaction with current and future customers at all levels of the organization improves products and prepares the Center to anticipate and respond to emerging issues and needs.

- **Empowerment:** Encouraging employees to be innovative in structuring new ways to do business results in more creativity and resourcefulness, new partnerships, enhanced exchange of ideas, new processes and procedures, and a commitment to constantly improve responses, products, and services.

- **Relevance:** Focusing on the Corporate Agenda and the Bureau's mission ensures that the work the Center performs meets the highest priority needs of BLM, and that the Center's resources are being used to the best advantage of the entire organization.

- **Technology Transfer and Information Exchange:** Sharing and transferring technology, work processes, scientific methodologies, technical data, and information to field offices and partners extends the Center's capabilities and improves the Bureau's ability to "work smarter and use good science."

The proposed Center will strengthen BLM's ability to meet the challenges it faces by supporting customers from throughout the Bureau and providing better service to the public. The National Applied Resource Sciences Center is designed not only to meet customer needs, but to exceed their expectations.